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## **CLAIMS**

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- 1. Use of an antagonist of the CB1 receptor in the manufacture of a composition for the treatment of hepatic diseases which result in hepatic fibrosis.
- 2. Use according to claim 1 wherein the antagonist of the CB1 receptor is a specific antagonist of the CB1 receptor.
- 3. Use according to claims 1 to 2 wherein the hepatic disease is alcoholic liver cirrhosis.
- 4. Use according to claims 1 to 2 wherein the hepatic disease is chronic viral hepatitis.
- 5. Use according to claims 1 to 2 wherein the hepatic disease is non-alcoholic steatohepatitis.
- 6. Use according to claims 1 to 2 wherein the hepatic disease is primary liver cancer.
- Use according to claims 1 to 6 wherein the antagonist is a compound of the formula II 7. or one of its pharmaceutically acceptable salt, in which g2, g3, g4, g5 and g6 and w2, w3, w4, w5 and w6 are identical or different and are independently hydrogen, a chlorine or 20 bromine atom, a (C1-C3) alkyl, a (C1-C3) alkoxy, a trifluoromethyl or a nitro group and g4 is optionally a phenyl group; R4 is hydrogen or a (C1-C3) alkyl; X is either a direct bond or a group -(CH<sub>2</sub>)<sub>x</sub> -N(R<sub>3</sub>)-, in which R<sub>3</sub> is hydrogen or a (C<sub>1</sub>-C<sub>3</sub>) alkyl and x is zero or one; R is: a group -NR1 R2 in which R1 and R2 are independently a (C1 -C6)alkyl; an non-aromatic (C3-C15) carbocyclic radical which is optionally substituted, said 25 substituent(s) being other than a substituted carbonyl; an amino (C1-C4) alkyl group in which the amino is optionally disubstituted by a (C1-C3) alkyl; a cycloalkyl (C1-C3) alkyl in which the cycloalkyl is C3-C12; a phenyl which is unsubstituted or monosubstituted or polysubstituted by a halogen, by a (C1-C5) alkyl or by a (C1-C5) alkoxy; a phenyl (C<sub>1</sub>-C<sub>3</sub>) alkyl; a diphenyl (C<sub>1</sub>-C<sub>3</sub>) alkyl; a naphthyl; an anthracenyl; a 30 saturated 5- to 8-membered heterocyclic radical which is unsubstituted or substituted by a (C1-C3) alkyl, by a hydroxyl or by a benzyl; a 1-adamantylmethyl; an aromatic heterocycle which is unsubstituted or monosubstituted or polysubstituted by a halogen, by a (C<sub>1</sub>-C<sub>5</sub>) alkyl or by a (C<sub>1</sub>-C<sub>5</sub>) alkoxy; a (C<sub>1</sub>-C<sub>3</sub>) alkyl which is substituted by an aromatic heterocycle which is unsubstituted or monosubstituted or polysubstituted by a 35 halogen, by a (C1-C5) alkyl or by a (C1-C5) alkoxy; or else R1 is hydrogen and R2 is as defined above; or else R1 and R2 form a saturated 5- to 8-membered heterocyclic radical with the nitrogen atom to which they are bonded, said heterocyclic radical being other

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than morpholine when  $w_2$ ,  $w_3$ ,  $w_4$ ,  $w_5$ ,  $w_6$ ,  $g_2$ ,  $g_3$ ,  $g_4$ ,  $g_5$  and  $g_6$  are all hydrogen; a group  $R_2$  as defined above when X is  $-(CH_2)_x$  N( $R_3$ )-; a group  $R_5$  when X is a direct bond,  $R_5$  being a ( $C_1$ - $C_3$ ) alkyl; a ( $C_3$ - $C_{12}$ ) cycloalkyl which is unsubstituted or substituted by a ( $C_1$ - $C_5$ ) alkyl; a phenyl ( $C_1$ - $C_3$ ) alkyl which is unsubstituted or substituted by a halogen or by a ( $C_1$ - $C_5$ ) alkyl; a cycloalkyl ( $C_1$ - $C_3$ ) alkyl in which the cycloalkyl is  $C_3$ - $C_{12}$  and is unsubstituted or substituted by a ( $C_1$ - $C_5$ ) alkyl; or a 2-norbornylmethyl.

- 8. Use according to claims 1 to 6 wherein the antagonist is N-piperidono-3-pyrazolecarboxamide or one of its pharmaceutically acceptable salt.
  - 9. Use according to claims 1 to 6 wherein the antagonist is N-piperidino-5-(4-bromophenyl)-1-(2,4-dichlorophenyl)-4-ethylpyrazole-3-carboxamide or one of its pharmaceutically acceptable salt.
  - 10. Use according to claims 1 to 6 wherein the antagonist is N-piperidino-5-(4-chlorophenyl)-1-(2, 4-dichlorophenyl)-4-methylpyrazole-3- carboxamide or one of its pharmaceutically acceptable salt.
- 20 11. Use according to any of the preceding claims wherein the CB1 receptor is selected from the group consisting of:
  - a) a protein having an amino acid sequence comprising SEQ ID NO:1 or a portion of SEQ ID NO:1, having the biological function of a G protein-coupled cellular receptor, capable of binding THC and transducing a cellular signal;
  - b) a protein having an amino acid sequence comprising SEQ ID NO:2 or a portion of SEQ ID NO:2, having the biological function of a G protein-coupled cellular receptor, capable of binding THC and transducing a cellular signal;

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- an allele of the protein having the amino acid sequence of SEQ ID NO:1 or SEQ ID NO:2, having the biological function of a G protein-coupled cellular receptor, capable of binding THC and transducing a cellular signal;
- d) a protein having the amino acid sequence of SEQ ID NO:1 with a Phenylalanine to Leucine substitution at position 200; and/or an Isoleucine to Valine substitution at position 216; and/or a Valine to Alanine substitution at position 246;
- e) a protein having the amino acid sequence of SEQ ID NO:2 with a Phenylalanine to
  Leucine substitution at position 139; and/or an Isoleucine to Valine substitution at
  position 155; and/or a Valine to Alanine substitution at position 185; and
  - f) a protein comprising the amino acid sequences of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8 and SEQ ID NO:9 or amino acid sequences 80 % homologous to these, said protein having the biological function of a G protein-coupled cellular receptor, capable of binding THC and transducing a cellular signal.
- 12. Use according to claims 1 to 10 wherein the CB1 receptor is a protein having a homology at the amino acid level with SEQ ID NO:1 of at least 45%, having the biological function of a G protein-coupled cellular receptor, capable of binding THC and transducing a cellular signal.
- Use according to the preceding claim wherein the homology is at least 60%, preferably 70 %, more preferably 80 %, even more preferably 90 % and more preferably 95 %.
  - 14. Use according to any of the preceding claims wherein the daily dosage of CB1 receptor antagonist is from 0.01mg to 500mg, preferably from 1 mg to 100 mg.
- 15. Use of a nucleic acid sequence coding for a protein comprising SEQ ID NO:1 or SEQ ID NO:2 or a portion of SEQ ID NO:1 or a portion of SEQ ID NO:2, for the preparation of a composition for the treatment of hepatic diseases which result in hepatic fibrosis, by the downregulation or suppression of the CB1 receptor.
- 35 16. A method of treatment of hepatic diseases which result in hepatic fibrosis in a mammal comprising the administration of a therapeutically effective amount of at least one CB1 receptor antagonist to a mammal in need thereof.
- 17. A method of treatment of hepatic diseases according to claim 16 wherein the CB1 receptor antagonist is a compound of the formula II or one of its pharmaceutically

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acceptable salt, in which g2, g3, g4, g5 and g6 and w2, w3, w4, w5 and w6 are identical or different and are independently hydrogen, a chlorine or bromine atom, a (C1-C3) alkyl, a (C<sub>1</sub>-C<sub>3</sub>) alkoxy, a trifluoromethyl or a nitro group and g<sub>4</sub> is optionally a phenyl group; R<sub>4</sub> is hydrogen or a (C<sub>1</sub>-C<sub>3</sub>) alkyl; X is either a direct bond or a group -(CH<sub>2</sub>)<sub>x</sub> -N(R<sub>3</sub>)-, in which R<sub>3</sub> is hydrogen or a (C<sub>1</sub>-C<sub>3</sub>) alkyl and x is zero or one; R is: a group -NR<sub>1</sub> R<sub>2</sub> in which  $R_1$  and  $R_2$  are independently a  $(C_1$  - $C_6)$ -alkyl; an non-aromatic  $(C_3$ - $C_{15})$ carbocyclic radical which is optionally substituted, said substituent(s) being other than a substituted carbonyl; an amino (C1-C4) alkyl group in which the amino is optionally disubstituted by a (C<sub>1</sub>-C<sub>3</sub>) alkyl; a cycloalkyl (C<sub>1</sub>-C<sub>3</sub>) alkyl in which the cycloalkyl is C<sub>3</sub>-C<sub>12</sub>; a phenyl which is unsubstituted or monosubstituted or polysubstituted by a halogen, by a (C1-C5) alkyl or by a (C1-C5) alkoxy; a phenyl (C1-C3) alkyl; a diphenyl (C1-C3) alkyl; a naphthyl; an anthracenyl; a saturated 5- to 8-membered heterocyclic radical which is unsubstituted or substituted by a (C1-C3) alkyl, by a hydroxyl or by a benzyl; a 1-adamantylmethyl; an aromatic heterocycle which is unsubstituted or monosubstituted or polysubstituted by a halogen, by a (C1-C5) alkyl or by a (C1-C5) alkoxy; a (C1-C3) alkyl which is substituted by an aromatic heterocycle which is unsubstituted or monosubstituted or polysubstituted by a halogen, by a (C1-C5) alkyl or by a (C<sub>1</sub>-C<sub>5</sub>) alkoxy; or else R<sub>1</sub> is hydrogen and R<sub>2</sub> is as defined above; or else R<sub>1</sub> and R<sub>2</sub> form a saturated 5- to 8-membered heterocyclic radical with the nitrogen atom to which they are bonded, said heterocyclic radical being other than morpholine when w2, w3, w4, w5, w6, g2, g3, g4, g5 and g6 are all hydrogen; a group R2 as defined above when X is -(CH<sub>2</sub>)<sub>x</sub> N(R<sub>3</sub>)-; a group R<sub>5</sub> when X is a direct bond, R<sub>5</sub> being a (C<sub>1</sub>-C<sub>3</sub>) alkyl; a (C3-C12) cycloalkyl which is unsubstituted or substituted by a (C1-C5) alkyl; a phenyl (C<sub>1</sub>-C<sub>3</sub>) alkyl which is unsubstituted or substituted by a halogen or by a (C<sub>1</sub>-C<sub>5</sub>) alkyl; a cycloalkyl (C1-C3) alkyl in which the cycloalkyl is C3-C12 and is unsubstituted or substituted by a (C<sub>1</sub> -C<sub>5</sub>) alkyl; or a 2-norbornylmethyl,

A method of treatment of hepatic diseases according to claim 16 wherein the CB1 18. antagonist is N-piperidono-3-pyrazolecarboxamide OT one of its 30 pharmaceutically acceptable salt.

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19. A method of treatment of hepatic diseases according to claim 16 wherein the CB1 receptor antagonist is N-piperidino-5-(4-bromophenyl)-1-(2,4-dichlorophenyl)-4-ethylpyrazole-3-carboxamide or one of its pharmaceutically acceptable salt.

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- 20. A method of treatment of hepatic diseases according to claim 16 wherein the CB1 receptor antagonist is N-piperidino-5-(4-chlorophenyl)-1-(2, 4-dichlorophenyl)-4-methylpyrazole-3- carboxamide or one of its pharmaceutically acceptable salt.
- 21. A method of treatment of hepatic diseases according to claims 16 to 20 wherein the hepatic disease is alcoholic liver cirrhosis.
  - 22. A method of treatment of hepatic diseases according to claims 16 to 20 wherein the hepatic disease is chronic viral hepatitis.

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- 23. A method of treatment of hepatic diseases according to claims 16 to 20 wherein the hepatic disease is non-alcoholic steatohepatitis.
- 24. A method of treatment of hepatic diseases according to claims 16 to 20 wherein the hepatic disease is primary liver cancer.
  - 25. A method of treatment of hepatic diseases according to claims 16 to 24 wherein the daily dosage of CB1 receptor antagonist is from 0.01mg to 500mg, preferably from 1 mg to 100 mg.

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